FPL.

L-2013-161
10 CFR § 50.73

MAY 10 2013

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D. C. 20555-0001

Re: Turkey Point Unit 3
Docket No. 50-250
Reportable Event: 2013-005-00
Reactor Trip Due to Turbine Header Pressure Spike While Testing Turbine Control Valves

The attached Licensee Event Report 05000250/2013-005-00 is submitted in accordance with 10 CFR 50.73(a)(2)(iv)(A) due to a Reactor Protection System actuation.

If there are any questions, please call Mr. Robert J. Tomonto at 305-246-7327.

Very truly yours,

Michael Kiley
Vice President
Turkey Point Nuclear Plant

Attachment

cc: Regional Administrator, USNRC, Region II
Senior Resident Inspector, USNRC, Turkey Point Nuclear Plant

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NRC FORM 366 (10-2010) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 10/31/2013

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the FOIA/Privacy Section (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects.resourse@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

LICENSEE EVENT REPORT (LER)

1. FACILITY NAME	2. DOCKET NUMBER	3. PAGE
Turkey Point Unit 3	05000250	1 of 3

4. TITLE

Reactor Trip Due to Turbine Header Pressure Spike While Testing Turbine Control Valves

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
3	12	2013	2013	- 005 -	00	5	10	2013	FACILITY NAME	DOCKET NUMBER

9. OPERATING MODE

2

10. POWER LEVEL

3

11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR§: *(Check all that apply)*

- ☐ 20.2201(b)
- ☐ 20.2201(d)
- ☐ 20.2203(a)(1)
- ☐ 20.2203(a)(2)(i)
- ☐ 20.2203(a)(2)(ii)
- ☐ 20.2203(a)(2)(iii)
- ☐ 20.2203(a)(2)(iv)
- ☐ 20.2203(a)(2)(v)
- ☐ 20.2203(a)(2)(vi)
- ☐ 20.2203(a)(3)(i)
- ☐ 20.2203(a)(3)(ii)
- ☐ 20.2203(a)(4)
- ☐ 50.36(c)(1)(i)(A)
- ☐ 50.36(c)(1)(ii)(A)
- ☐ 50.36(c)(2)
- ☐ 50.46(a)(3)(ii)0
- ☐ 50.73(a)(2)(i)(A)
- ☐ 50.73(a)(2)(i)(B)
- ☐ 50.73(a)(2)(i)(C)
- ☐ 50.73(a)(2)(ii)(A)
- ☐ 50.73(a)(2)(ii)(B)
- ☐ 50.73(a)(2)(iii)
- ☒ 50.73(a)(2)(iv)(A)
- ☐ 50.73(a)(2)(v)(A)
- ☐ 50.73(a)(2)(v)(B)
- ☐ 50.73(a)(2)(v)(C)
- ☐ 50.73(a)(2)(v)(D)
- ☐ 50.73(a)(2)(vii)
- ☐ 50.73(a)(2)(viii)(A)
- ☐ 50.73(a)(2)(viii)(B)
- ☐ 50.73(a)(2)(ix)(A)
- ☐ 50.73(a)(2)(x)
- ☐ 73.71(a)(4)
- ☐ 73.71(a)(5)
- ☐ OTHER

Specify in Abstract below or in NRC Form 366A

12. LICENSEE CONTACT FOR THIS LER

NAME	TELEPHONE NUMBER (Include Area Code)
Paul F. Czaya	305-246-7150

13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX

14. SUPPLEMENTAL REPORT EXPECTED

☐ YES *(If yes, complete 15. EXPECTED SUBMISSION DATE)* ☒ NO

15. EXPECTED SUBMISSION DATE

MONTH	DAY	YEAR

ABSTRACT *(Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)*

On March 12, 2013 at approximately 1431 with Unit 3 in Mode 2 at approximately 3% rated thermal power, an automatic reactor trip occurred due to a turbine inlet pressure spike during turbine control valve (TCV) testing. Turbine inlet pressure enables the Reactor Protection System (RPS) at power reactor trips. One at power reactor trip is a turbine trip initiated by closure of both turbine stop valves (TSV). The pressure spike enabled the at power trips while the TSVs were closed causing the reactor trip. All control rods inserted and plant parameter response was as expected. The event is reportable in accordance with 10 CFR 50.73(a)(2)(iv)(A). The cause of the reactor trip was the unexpected pressure spike resulting from a quick opening of the No. 3 TCV of sufficient magnitude to satisfy the P-7 interlock with the TSVs closed. Corrective actions include the following procedure changes: 1) Close main steam isolation valves and turbine stop drain valves when testing TCVs, 2) Caution that TCV testing can lead to turbine inlet pressure spikes which could result in reactor trip, and 3) Ensure that the main steam header is depressurized prior to cycling a TCV during post maintenance testing. With plant response as expected, the risk associated with this low power trip is judged very low.

**LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET**

1. FACILITY NAME	2. DOCKET NUMBER	6. LER NUMBER			3. PAGE
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Turkey Point Unit 3	05000250	2013	- 005	- 00	Page 2 of 3

NARRATIVE

DESCRIPTION OF THE EVENT

On March 12, 2013 at approximately 1431 with Unit 3 in Mode 2 at approximately 3% rated thermal power (RTP), an automatic reactor [AC, RCT] trip occurred due to a spike sensed at Pressure Transmitter [JC, PT] PT-3-447, Turbine Inlet Pressure, during turbine control valve (TCV) [TA, TRB, FCV] testing. PT-3-447 provides input to the P-7 (greater than 10% power) permissive, which enables the Reactor Protection System (RPS) [JC] at power reactor trips (At Power Trips). One of the At Power Trips is a turbine [TA, TRB] trip initiated by 2 out of 2 turbine stop valves (TSV) [TA, TRB, ISV] closed, or 2 out of 3 emergency trip header pressure transmitters greater than or equal to 901 psig. At the time, the TSVs were already closed, which resulted in the RPS actuation.

All control rods inserted. The Auxiliary Feedwater (AFW) System [BA] did not actuate. Plant parameter response was as expected.

Because an RPS actuation occurred, this event is reportable in accordance with 10 CFR 50.73(a)(2)(iv)(A). The event was previously reported in Event Notification 48817 in accordance with 10 CFR 50.72(b)(2)(iv)(B).

CAUSE OF THE EVENT

The direct cause of the reactor trip was the unexpected pressure spike resulting from a quick opening of the No. 3 TCV of sufficient magnitude to satisfy the P-7 interlock [JC, IEL] with the TSVs closed.

The root cause is a failure to recognize the risk associated with TCV testing that can cause a pressure transient sufficient to enable the At Power Trips.

ANALYSIS OF THE EVENT

During the event, the reactor was at approximately 3% RTP (below P-7 permissive) with the main steam isolation valves (MSIV) [SB, ISV] open and steam header pressurized. The turbine was latched with TSVs closed and turbine stop drain valves [TF, V] open. The open stop drain valves effectively bypass the TSVs and pressurize the line between the TSVs and TCVs to main steam header pressure.

With the TSVs closed, post maintenance testing and calibration was being performed on the newly installed valve position indicator for the No. 3 TCV, which was incrementally exercised from fully closed to fully open. During the final test checks the No. 3 TCV was being opened from full close to full open, which resulted in the steam that had built up behind the TCV to rapidly reach the turbine inlet pressure transmitter causing indicated turbine power to exceed the P-7 set point which enabled the At Power Trips. With the input to the RPS for a turbine trip already met (two TSVs closed), the P-7 interlock satisfied RPS logic to actuate and cause a reactor trip.

LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET

1. FACILITY NAME	2. DOCKET NUMBER	6. LER NUMBER			3. PAGE
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Turkey Point Unit 3	05000250	2013	- 005	- 00	Page 3 of 3

NARRATIVE

ANALYSIS OF SAFETY SIGNIFICANCE

Upon reactor trip, response procedures were entered. Reactor and turbine trips, and unit stability were verified. Operators then transitioned to the normal shutdown procedure. All control rods inserted. AFW did not actuate because all SG levels remained above 16%.

Reactor operation at reduced power levels results in a smaller transient immediately after the automatic reactor trip. Plant parameter response was as expected for this transient. Therefore, the safety significance and contribution to plant risk from this event are very low.

CORRECTIVE ACTIONS

Corrective actions are documented in AR 1856035 and include the following:

1. Procedure changes to require MSIVs and turbine stop drain valves to be closed when testing TCVs in Modes 2 or 3 with reactor trip breakers closed.
2. Procedural precautions identifying that TCV testing can lead to turbine inlet pressure spikes, and reactor trip if the P-7 interlock is enabled with the turbine latched and reactor trip breakers closed.
3. Revision of the post maintenance testing procedure to ensure that the main steam header is depressurized prior to cycling a TCV.

FAILED COMPONENTS IDENTIFIED: None

PREVIOUS SIMILAR EVENTS: None